REMARKS

The minor changes to claims 39 and 51 are being made to overcome the objections thereto set forth in the Office Action and should be entered in the application even if the Examiner maintains the prior art rejections discussed below.

The undersigned attorney, William A. Blake, would like to thank Examiner Moorthy for the courtesy shown during the telephone conference interview that was conducted on February 21, 2006 with Mr. Blake and the inventor, Dr. Frederick Bruwer. During the interview, Mr. Blake focused on the rejections of the 2 independent claims, claims 25 and 52, under 35 U.S.C. 102 as being anticipated by US Patent No. 5,500,897 to Hartman, Jr. and US Patent No. 6,484,260 to Scott et al., respectively. Mr. Blake noted that both of these rejections are clearly in error as neither reference discloses the steps or elements recited in the claims as required under 35 U.S.C. 102. In response, Examiner Moorthy indicated that he had not had sufficient time to reconsider this issue and admitted that he was not very familiar with the application since he had only been recently assigned to take over examination of the application after the first Examiner left the patent office. Mr. Moorthy then requested that a formal request for reconsideration be filed so that he can consider the foregoing issues fully.

In the interest of keeping the response as clear as possible, the focus of the discussion will be on the foregoing rejections of claims 25 and 52, since once they are established to be in error, the remaining rejections of the dependent claims are automatically also in error. Only brief attention will be given to a few of the dependent claims that Applicant submits have been interpreted by the Examiner incorrectly. For the record, most of the dependent claims recite features and elements, which themselves are also not disclosed or suggested in the cited references.

The invention recited in claims 25 and 52 relates to a method and apparatus for securely transferring data between a transmitter and a receiver. Typical applications of the invention include wireless remote controllers for garage door openers, door locks, gate controllers, etc. It is especially desirable in the case of security related applications, such as garage door openers, door locks or remote keyless entry systems, that only authorized remote controllers be able to communicate with the receiver that controls actuation of a device and transfer commands. The subject invention specifically relates to a technique for insuring that only authorized remote transmitter encoders can transfer commands to a receiver decoder. The invention represents an improvement on a known technique whereby clocks or timers in a transmitter and a receiver and first synchronized with one another and the value of the transmitter time is sent to the receiver each time the transmitter sends encrypted data to the receiver. The receiver compares its clock value with the received transmitter clock value after decryption. If the two values match, then this confirms that the transmission is from an authorized transmitter. If the values do not mach, then the transmission is not from an authorized transmitter and the receiver will not permit actuation of the controlled device.

The present invention avoids the need for synchronizing or resetting the transmitter (encoder) and receiver (decoder) clocks or timers for normal operation, which is a notable drawback in the prior art if one desires to apply the concept to a system having multiple remote controls. As noted before, during the synchronization step in the prior art system, both the encoder and decoder timers (time based counters) must be manually reset, preferably at the same instant. This makes it totally impractical to use more than one encoder with a single decoder. The same problem would apply to systems requiring only the receiver (decoder) counter/timer to reset during learning or matching. The use of multiple encoders with a single decoder is a typical

requirement for applications such as door locks, vehicle remote keyless entry (RKE) systems and garage door controllers.

The invention recited in claims 25 and 52 overcomes the foregoing problem by not requiring reset or synchronization at all of any transmitter or receive timers or clocks. More particularly, the claimed invention employs what is referred to as a Timer Relationship Value (TRV) which is generated from the *difference* between the values of the encoder and decoder timers. In the invention recited in claims 25 and 52, the TRV is generated during a learning (matching) process in which the decoder receives identification information from the transmitter, including the timer value of the encoder and determines the difference between the encoder timer value and the decoder timer value at that instant. For example, if the transmitter(encoder) timer value is "20" and the receiver (decoder) timer value is "15", then the TRV would be 20-15 or 5. The TRV is then used each time a data transmission (command) is received from the transmitter encoder. The difference between the encoder and decoder timer values is calculated and then compared to the TRV stored in the decoder. If the difference matches the store TRV, this then confirms that the received signal is from the valid (authorized) transmitter that was used during the learning process and the command would be executed, but if it differs then the command would not be accepted.

With specific reference to the prior art rejections of claims 25 and 52, claim 25 stands rejected under 35 U.S.C. 102 as being anticipated by US Patent No. 5,500,897 to Hartman, Jr. The Examiner asserts in this regard that the majority of the elements in claim 25 are disclosed in column 6, lines 22-49 of Hartman. This assertion is clearly in error.

The cited passage in Hartman makes absolutely no mention of forming a timer relationship value using the difference between a transmitter timer value and a receiver timer

value, and then storing and using this timer relationship value to authenticate the transmitter. Instead, Hartman discloses that a server computer system 120 provides secure time information for use by one or more client computer systems and that a message authentication code (MAC) may also be included in the client's request transmission. In fact in columns 7-8 it is mentioned five times that the clock (TOD) of the client (decoder) is replaced or adjusted. This is precisely what the subject invention sets out to eliminate due to the problems it causes in practical systems. At most, Hartman discloses comparison of stored data to received decrypted data. However, the steps in claim 25 are much more specific than that and recite during a learning process receiving a value of said encoder timer at said decoder timer and generating *a timer relationship value which is dependent at least on a difference between the value of the encoder timer and the value of the decoder timer*; storing the timer relationship value in said decoder; and validating decrypted transmission words that are later received from the encoder by comparing the encoder timer value and the decoder timer value *and their relationship with the stored timer relationship value*. As a result, Hartman simply cannot be asserted to anticipate claim 25 or any of the claims that depend thereon.

Claim 52 stands rejected under 35 U.S.C. 102 as being anticipated by US Patent No. 6484260 to Scott et al. In support of this rejection, the Examiner cites the passage in Scott at column 12, 29-59. Applicant respectfully submits that this rejection is also clearly in error.

The cited passage includes the following statement:

"Host processing unit then verifies that the synchronization counter information in the decrypted signal matches stored synchronization counter information in memory 36 (212)."

From this passage, it is clear that Scott's system is merely another example of a system that requires comparing the two counters, which is exactly what the subject invention is designed

to avoid. In contrast, the apparatus of claim 52 determines the difference between the encoder timer information and the decoder timer information and compares this difference value to the stored timer relationship value. Again, this distinction is key for it is this feature that eliminates the need to initially synchronize the timers or replacing or adjusting one of the timers. Clearly then, Scott does not anticipate claim 52 or the any of the claims that depend thereon.

In page 10 of the Office Action with regards to claim 31, the Examiner acknowledges that Hartman does not disclose a "cold boot counter" but states that US Patent No. 5,446,904 to Belt does and cites a passage from Belt. This passage recites a "resume flag" that can enforce a "cold boot". A flag is not a counter and a resume flag furthermore holds no information about the number of cold boot events that has occurred. This information about the number of cold boot events is essential in maintaining the security of the system of the present invention in certain embodiments as claimed. Similarly, the examiner cites US Patent No. 5,155,729 to Rysko with regards to the cold boot counter as claimed in claim 32, 33, 61 – 63. However, Rysko teaches a "switchover counter" that can result in a cold boot at a certain value. This concept of a switchover counter has no relation to a counter that counts the number of cold boot events and then uses the cold boot counter value for security purposes. For example the switchover counter is used for synchronizing a redundancy system and is reset upon a cold boot event. It does not count the number of cold boot events. For these reasons also, Applicant respectfully submits that the rejections of claims 31-33 and 61-63 are also in error.

In view of the foregoing reasons, it is clear that the rejections of claims 25 and 52, as well as the rejections of the claims that depend thereon, are in error and should be removed. Accordingly, Applicant respectfully requests favorable reconsideration and allowance of the application.

Respectfully submitted,

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